

## PROPOSED REMEDIAL ACTION DOCUMENT

## MCBAY OIL AND GAS STATE SUPERFUND SITE

## HOUSTON COUNTY, TEXAS

### FEBRUARY 2020

PREPARED BY:

#### TEXAS COMMISSION ON ENVIRONMENTAL QUALITY SUPERFUND SECTION REMEDIATION DIVISION

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## **1.0 INTRODUCTION**

The McBay Oil and Gas State Superfund Site (the site) is located near the City of Grapeland, approximately two miles west of the intersection of Farm to Market (FM) 1272 and FM 2968 in a rural area of Houston County, Texas. The approximate geographic coordinates of the site are 31 degrees, 30 minutes, 26 seconds north latitude and -95 degrees, 31 minutes, 24 seconds west longitude. The site is bounded by FM 1272, residential property, forest, and agricultural land. (See Figure 1, Site Location Map).

The site was used from the 1930s to 1987 for various operations including a crude oil refinery, a gas recycling plant, an oil field parts storage yard, and an oil reclamation plant. Wastes generated from operations at the site included petroleum refining wastes, waste oils, barge bottoms, tank bottoms, and fluids containing salts, de-emulsifiers, polymers, and surfactants.

The Texas Commission on Environmental Quality (TCEQ) implements many of the state laws relating to the protection of public health and safety and the environment. The TCEQ addresses certain sites that may constitute an imminent and substantial endangerment to public health and safety or the environment through the state Superfund program.

## 2.0 PURPOSE

This **Proposed Remedial Action Document** (PRAD) presents the proposed **Remedial Action** (also known as the remedy) for the site, which is designed to address contamination at the site and provide protection of public health and safety and the environment. Words appearing in **bold italics** in this document are defined in Section 11, "Glossary." The PRAD serves the following purposes:

- Describes the actions taken by the TCEQ to investigate and mitigate contamination at the site;
- Describes the proposed *Remedial Action*;
- Allows for public review of the proposed *Remedial Action*; and
- Provides information on how the public can comment on the proposed *Remedial Action*.

This PRAD summarizes information that can be found in greater detail in various reports located in the site files and listed below. The TCEQ encourages the public to review these documents to gain a better understanding of the site, the state Superfund process, the actions taken by the TCEQ and the actions proposed by the TCEQ to address the site.

Copies of the documents summarized in this PRAD, as well as other relevant information, can be viewed at local repositories located at:

J.H. Wootters Crockett Public Library	Grapeland Public Library
709 East Houston Avenue	212 North Oak Street
Crockett, TX 75835	Grapeland, TX 75844
(936) 544-3089	(936) 687-3425

A complete project file is available at the TCEQ Central File Room:

12100 Park 35 Circle Building E, 1st Floor Austin, Texas 78753 (512) 239-2900

## 3.0 LEGAL AUTHORITY

The investigation of the nature and extent of contamination at the site and the selection of the proposed *Remedial Action* is in accordance with the *Solid Waste Disposal Act* (codified as Texas Health and Safety Code (THSC) Chapter 361); Hazardous Substance Facilities Assessment and Remediation rules found in 30 Texas Administrative Code (TAC) Chapter 335, Subchapter K; and the *Texas Risk Reduction Program* (TRRP) rules found in 30 TAC Chapter 350.

While the Chapter 335 rules are specific to the state Superfund process, the TRRP rules apply to many different types of corrective action administered by the TCEQ. These rules establish procedures for determining the concentration of chemicals of concern (COCs) to which a person or other environmental receptor can be exposed without unacceptable risk to public health and safety and the environment. These acceptable concentration levels are called *Protective Concentration Levels* (PCLs) and can be thought of as the "cleanup level" for contamination.

A three-tiered approach may be used under the TRRP rules to calculate the PCLs for a site. The tiers represent increasing levels of evaluation where site-specific information is factored into the process. Tier 1 uses conservative, generic equations and input factors that do not account for site-specific factors; Tier 2 allows for the use of site-specific information, but requires the use of PCL equations provided by the TCEQ; and Tier 3 allows for more detailed and complex evaluations so that PCLs are appropriate for specific site conditions. The TCEQ has determined that Tier 1 PCLs are appropriate for this site.

The land use classification is critical under all three of the tiers. Under the TRRP rules, current land use shall be determined by comparing the existing land use to TRRP definitions of residential and commercial/industrial (C/I). Residential standards apply to land used for dwellings such as single family houses and multi-family apartments, as well as properties used for a sensitive potentially exposed population such as day care facilities, educational facilities, hospitals, and parks. C/I standards apply to any property not used for human habitation or other purposes which would fall under the TRRP definition of residential, and they are protective of persons who may occupy the site as workers. Sites remediated to C/I standards cannot be used for residential-type activities unless further controls are implemented to make the site safe for that use. The TCEQ has determined that a C/I land use classification is appropriate for the site.

The TRRP rules allow for the management of risks posed by the presence of contamination through any combination of the following remedies:

1. removal or decontamination of contaminated media;

- *2.* physical controls, such as containment cells and caps, which limit exposure to the contaminated media; or
- 3. *institutional controls*, such as restrictive covenants or deed notices, filed in the county real property records, to inform future owners and the public of contamination on the property.

There are two categories of remedy standards under TRRP: Remedy Standard A and Remedy Standard B. To meet Remedy Standard A requirements, the contaminated media must be removed and/or decontaminated such that physical controls and, in most cases, *institutional controls* are not necessary to protect human and ecological receptors. To meet the requirements of Remedy Standard B, however, physical controls and *institutional controls* may be used. These standards are described in detail in 30 TAC Sections 350.32 and 350.33. The proposed remedy at the site meets the criteria established for Remedy Standard B.

## 4.0 SITE HISTORY

In the 1930s, the site was used an oil processing facility, and from 1941 to 1959, it was used as a crude oil refinery. Beginning in 1960, the site was utilized as an oil reclamation facility, and in 1987, all industrial operations ceased at the site.

Environmental investigations at the site began in October 1979, when the property owner was cited by the Railroad Commission of Texas (RRC) for dumping industrial wastes into an injection well. Over the years, several complaints regarding the site were received and investigated by the Environmental Protection Agency (EPA), the RRC, and the TCEQ and its predecessor agencies. During these investigations, drums, pits, holding tanks, and oil covered roads were observed onsite and samples of soil, sediments and surface water were collected from the site. Subsequent analysis showed metals, semi-volatile organic compounds, and volatile organic compound contamination of on-site and off-site media.

On December 12, 1986, the TCEQ prepared a *Hazard Ranking System* (HRS) package for the site. The HRS is a numerical scoring tool that uses information from initial, limited investigations to assess whether a site qualifies for the state or federal Superfund programs. Sites scoring 28.5 or greater may qualify for the federal Superfund program, while sites scoring 5 or greater may qualify for the state Superfund program. An HRS score of 16.8 qualified the site for the state Superfund program. On January 16, 1987, the McBay Oil & Gas Company site was listed on the Texas Superfund registry.

On December 22, 1987, the Texas Water Commission (TWC), a predecessor agency to the TCEQ, signed an Order that required updating the property deed to include the site listing on the State Registry and required responsible parties to notify the TWC if they planned a change in land use. The Order required that the responsible parties develop a remedial action plan, which included the following documents: work plans, remedial investigation/feasibility study reports, and design and construction plans.

On May 21, 1990, the Travis County District Court approved an Agreed Order for Continuance and Agreement in Principle with Mr. George Bartee, a former operator of the site. From April 1991 to

October 1998, in concurrence with the Agreed Order, Mr. Bartee constructed a retention basin and conducted land treatment of oily soils, which included the construction of a land treatment unit and treatment of 3,717 cubic yards of excavated waste.

On May 22, 1997, a waste characterization work plan was approved by the Texas Natural Resources Conservation Commission (TNRCC), a predecessor agency to TCEQ. On December 11, 1997, the TNRCC entered into an Agreed Order (Order No. 97-1055-SPF) with 21 **Potentially Responsible Parties** (PRPs). The Order instructed the PRPs to complete a **Removal Action**, which included managing hazardous and non-hazardous waste. The removal action included submitting a waste removal action work plan and waste removal action report.

From 1997 to 1998, the PRPs in the 1997 Agreed Order conducted removal actions which included removing and disposing exploration and production waste sludges and fluids from 187 drums and 34 tanks, and 1,000 feet of aboveground piping. Also, impacted soils to a depth of 6 to 8 inches and 162 cubic yards of soil were removed in the vicinity of an on-site storage tank area.

In July 1999, a legal notice was published in the *Texas Register* (24 TexReg 5069) proposing a non-residential (industrial) land use designation and cleanup specifications for the site. Following a public comment period and a public meeting conducted on August 12, 1999, the non-residential land use designation was adopted.

Under an Agreed Administrative Order with the TNRCC executed September 20, 1999, (Order No. 1999-1095-SPF), four PRPs agreed to perform a *Remedial Investigation* and *Feasibility Study* for the site. The Order listed solid waste at the site to include barge bottoms, barge strippings, fuel oil tank bottoms, tank bottoms, waste materials, and waste oil. Also, the Order documented hazardous substances at the site to include arsenic, barium, lead, chromium, magnesium, vanadium, zinc, waste oil, and tank bottoms.

On May 9, 2003, the Texas Attorney General published a legal notice in the *Texas Register* (28 TexReg 3857), proposing resolution of an environmental lawsuit against Mr. Bartee and inviting public written comment on the determination that Mr. Bartee has satisfied the terms and condition of the Administrative Order as to his divisible share of the waste, and providing for a release.

On September 30, 2004, a final *Remedial Investigation* report was submitted to the TCEQ by PRPs pursuant to the Order dated September 20, 1999. The report documented the installation of monitor wells, the collection and analysis of groundwater, sediment, soil, and surface water samples, survey activities, aquifer testing, and site characterization.

On April 22, 2005, a final *Feasibility Study* was submitted to the TCEQ by PRPs pursuant to the Order dated September 20, 1999. The report compiled existing site information, described site cleanup goals, identified predominant chemical groups, identified remedies for consideration, and determined whether existing information was adequate to support the considered remedies. At the time of the 2005 Feasibility Study, the cleanup goals for on-site soils and groundwater were developed using Risk Reduction Standard Number 2. The recommended soil remedy was excavation and on-site containment of affected on-site soils and potentially affected debris. The recommended groundwater remedy was natural attenuation.

Upon review of the PRP's *Feasibility Study*, the TCEQ determined that that additional site Page 6 of 18

characterization was needed and that different remedial action requirements under TRRP may apply.

## 5.0 REMEDIAL INVESTIGATION/FOCUSED FEASIBILITY STUDY

The TCEQ began its own *Remedial Investigation / Focused Feasibility Study* to evaluate the site under the TRRP rule in 2011. In January 2020, the TCEQ completed the *Remedial Investigation* (RI) phase by completing a Revised *Affected Property Assessment Report (APAR)*. The APAR included sample collection, laboratory analysis, and interpretation of collected data for the purpose of determining the nature and extent of contamination and determining an appropriate remedy for the site based on TRRP. In February 2020, the TCEQ completed a *Focused Feasibility Study* (FFS) for the site that developed and evaluated alternatives to remediate the site under the TRRP rule.

To complete the RI, the TCEQ:

- installed and/or monitored 37 groundwater monitoring wells in one groundwater-bearing unit (GWBU);
- conducted a cone penetrometer testing/rapid optical screening tool (CPT/ROST) investigation to determine the presence and extent of non-aqueous phase liquids;
- collected and analyzed numerous surface soil, subsurface soil, and groundwater samples to determine the nature and extent of contamination and to develop statistical contaminant trends;
- completed hydrogeological studies to classify the subsurface groundwater distribution, flow, and quality;
- completed soil background and geochemical studies to characterize the soil conditions at and around the site and develop site-specific PCLs;
- conducted stratigraphic characterization studies to investigate the site's geology;
- completed ecological risk studies to evaluate the potential impact of contamination on ecological receptors.

Findings of the RI included the following:

- The uppermost GWBU, the Sparta Formation, is contaminated with NAPL and dissolved contaminants that exceed critical PCLs (22 to 50 feet below the ground surface). The discovery of NAPL in the uppermost GWBU was made in 2011 by the TCEQ;
- Site COCs for groundwater are benzene, 1-methylnapthalene, 2-methylnaphthalene, and total petroleum hydrocarbons;

- Although mobile NAPL is likely present at the site, it does not appear to be recoverable because measurable thicknesses are rarely observed;
- No on-site or off-site soils exceed human health risk PCLs;
- The Screening Level Ecological Risk Assessment (SLERA), submitted in 2019, documented that the only ecological protective concentration limit exceedances in on-site or off-site soils were due to naturally occurring geologic conditions and there were no unacceptable ecological risks at the site.

## 5.1 Site Topography and Geology

The site is situated on a mostly flat part of a topographical ridge. Surface drainage from the site flows to the south and west into the Big Elkhart Creek/Trinity River drainage that lies to the southwest of the site. The site is located on an outcrop of the Middle Eocene-age Sparta Formation, which is approximately 60 feet thick and caps the ridge. The Sparta Formation, also known as the Sparta Sand, consists of fine- to coarse-grained sand interlayered with light-colored clays and is the principal source of groundwater in Houston County. The Sparta Formation is underlain conformably by the Weches Formation, which is exposed on the lower slopes and drainages located to the south and west of the site.

The Weches Formation consists of glauconitic fossiliferous marl, sand, sandstone, shale, and limestone and is also approximately 60 feet thick. The Sparta-Weches contact occurs at an elevation of approximately 425 feet mean sea level on the steep slopes to the west of the site. Impermeable strata (clays and shales) in the upper Weches Formation act as a lower confining unit that causes groundwater to discharge along the Sparta-Weches Formation contact, which is expressed as numerous seeps and muddy land surfaces with dense vegetation. The abundant seepage along the Sparta-Weches Formation contact demonstrates the effectiveness of the Weches Formation as an aquitard at the site and vertical groundwater migration or contaminant transport through the Weches Formation to the next deeper GWBU, the Queen City Formation, is unlikely.

## 5.2 Site Hydrogeology

The uppermost GWBU at the site, the Sparta Formation, has a maximum thickness of approximately 55 feet, of which approximately 25 feet is saturated in the site area. Monitoring wells at the site are typically installed in the basal, sandy portion of the Sparta Formation, although some of the wells located to the west of the site, and near the Sparta-Weches Formation contact, are believed to also be screened in the uppermost Weches Formation. The depth to groundwater on-site is approximately 17-36 feet below the ground surface. The depth to groundwater off-site is 0-39 feet below the ground surface.

The groundwater in the Sparta Formation appears to be under unconfined aquifer conditions and the piezometric surface basically conforms to the land surface topography. The primary groundwater flow direction at the site has consistently been westerly and southwesterly. Hydraulic conductivities of aquifer materials are typical of fine and medium sized unconsolidated sand deposits.

TRRP defines three classes of groundwater resources based on current use, water quality, and

sustainable well yield. The TCEQ determined that the Sparta Formation is a Class 2 groundwater resource based on hydraulic conductivity aquifer tests. Class 2 groundwater resources are considered usable, or potentially usable, drinking water supplies.

## **5.3 Groundwater Impacts**

The RI determined that groundwater located on-site and off-site in the uppermost GWBU, the Sparta Formation, is impacted with NAPL and contamination plumes of several COCs that exceed applicable PCLs. These COCs include benzene, 1-methylnaphthalene, 2-methylnaphthalene, and total petroleum hydrocarbons (TPH). Each of the groundwater plumes originate on-site and then extend off-site onto adjacent properties. The TCEQ estimated that the total area of on-site property overlying groundwater with COCs exceeding on-site PCLs is approximately 192,500 square feet (sf) and the total estimated area of off-site property overlying groundwater with COCs exceeding off-site PCLs is approximately 334,500 sf. Most significantly, the dissolved contaminant plumes have not changed or enlarged significantly over the past 20 years of groundwater monitoring at the site and the NAPL is rarely observed in monitoring wells at the site and is not recoverable.

The RI concluded that groundwater impacts at the site were limited to the uppermost GWBU.

## 5.4 Soil Impacts

The RI determined the nature and extent of soil contamination at the site. The COCs for site soils were identified as benzene, 1-methylnaphthalene, and 2-methylnaphthalene. No on-site or off-site soils were found to exceed human health risk PCLs. However, four soil samples collected from four separate locations in the southern part of the site were each found to contain a COC that exceeds the groundwater protection PCLs. The groundwater protection PCLs are the acceptable soil concentrations that are protective of groundwater. Other than these soil exceedances, no on-site or off-site soils require a remedial response pursuant to TRRP.

## 5.5 Evaluation of Ecological Risks

As part of the RI, a SLERA, was completed to evaluate the likelihood that adverse ecological effects are occurring or may occur as a result to exposure to site COCs. The SLERA evaluated site ecological risks, screened and identified site COCs that may pose an ecological risk, and determined ecologically protective concentration levels to be used in evaluating whether response actions were necessary. The SLERA concluded that there were no unacceptable ecological risks at the site.

## 5.6 Community Involvement

The TWC held a public meeting on August 19, 1986, regarding the proposal of the site to the state registry of Superfund sites. The site was proposed for listing on the state registry of Superfund sites in the January 16, 1987, issue of the *Texas Register* (12 TexReg 205).

The TWC held a public meeting on August 12, 1999, to receive community comments on the proposal to use non-residential (industrial) land use specifications for remediation of the site contamination. Following a public comment period, the non-residential land use designation was adopted.

The TCEQ periodically updates the site information on its webpage, located at <u>https://www.tceq.texas.gov/remediation/superfund/state/mcbay.html</u> to reflect its current status in the TCEQ Superfund process and relevant points of contact.

## 6.0 CURRENT CONDITIONS

## 6.1 Soil

The nature and extent of contamination in the soils at the site has been adequately characterized and delineated. Soil samples collected from four locations on-site were found to contain COCs at concentrations above the groundwater protection PCLs. No other soils require a remedial response pursuant to TRRP. This is primarily the result of the removal actions that were conducted in the 1990s by the PRPs.

## 6.2 Surface Water and Sediments

The nature and extent of contamination in the surface water and sediments at the site has been adequately characterized and delineated. No surface water and/or sediments require a remedial response pursuant to TRRP.

## 6.3 Groundwater

The nature and extent of contamination in the groundwater at the site has been adequately characterized and delineated. On-site and off-site groundwater at the site is contaminated with dissolved contaminant plumes of benzene, 1-methylnaphthalene, 2-methylnaphthalene, and TPH that exceed groundwater ingestion PCLs, and NAPL is also present at the site. Based on approximately 20 years of groundwater monitoring, the dissolved contaminant plumes are stable and have not migrated significantly.

## 7.0 DESCRIPTION OF REMEDIAL ACTION ALTERNATIVES

In the *Focused Feasibility Study* Report, remedial alternatives and their estimated costs for cleaning up the groundwater at the site were developed. The remedial alternatives are listed below:

**GW-1: Monitored Natural Attenuation -** On-site and off-site impacted groundwater and NAPL will be addressed by monitored natural attenuation;

**GW-2: On-Site and Off-Site Plume Management Zone (Proposed Remedial Action) -**On-site and off-site impacted groundwater and NAPL will be managed through a **Plume** *Management Zone* (PMZ);

**GW-3: On-Site PMZ and Off-Site Groundwater Decontamination -** On-site impacted groundwater and NAPL will be managed through a PMZ with in-situ groundwater treatment of the NAPL source areas, off-site impacted groundwater will be decontaminated using in-situ

groundwater treatment. The in-situ groundwater treatment for this alternative will be either chemical oxidation, enhanced bioremediation, or air sparging, depending on site conditions.

## 7.1 Evaluation of Remedial Action Alternatives

In accordance with Section 361.193 of the Texas Health and Safety Code and 30 TAC Section 335.348(l), the TCEQ selects the *Remedial Action* for a site by determining which remedial alternative is the lowest cost alternative which is technologically feasible and reliable, effectively mitigates and minimizes damage to the environment, and provides adequate protection of the public health and safety and the environment. To help with this determination, the TCEQ evaluated each of the alternatives against a subset of evaluation criteria:

- 1. Cost;
- 2. Feasibility;
- 3. Reliability (including long-term effectiveness and permanence);
- 4. Overall Protection of Human Health and the Environment (over both the short- and long-term); and
- 5. Compliance with Applicable Regulations.

The TCEQ evaluated the *Remedial Action* alternatives for the above evaluation criteria, with the exception of cost. The TCEQ then assigned numerical ratings (scores) for each of the remedial action alternatives based on their scores under each evaluation criteria, from 0 to 5, where a score of 0 represents the least value and a score of 5 represents the best value. Some of the evaluation criteria use either a "Yes" or "No" response. A response of "Yes" is favorable and indicates that the evaluated remedial action alternative will meet the criteria, while a response of "No" is unfavorable and indicates that the evaluated remedial action alternative will not meet the criteria. These evaluations and the estimated costs, are shown in Table 1 – Remedial Action Alternatives Evaluation.

Most of the *Remedial Action* alternatives would provide adequate protection of public health and safety and the environment and comply with applicable regulations. However, the TCEQ selects the lowest cost alternative that meets the requirements of THSC Section 361.193. Therefore the score and the cost were taken into consideration to select groundwater remedial alternative GW-2 to remediate the site (See Figure 2, Proposed Remedy).

Evaluation Criterion	GW-1 Monitored Natural Attenuation	GW-2 On-site and Off-site PMZ	GW-3 On-Site PMZ and Off-Site Groundwater Decontamination
Cost	\$1,015,000	\$466,000	\$22,727,000
Feasibility	1	4	2
Reliability	1	4	
(including			
long-term			3
effectiveness			
and			
permanence)			
Protection of	No	Yes	Yes
human health			
and the			
environment			
(over both the			
short- and			
long-term)			
Compliance	No	Yes	
with applicable			Yes
regulations			
Subtotal for	2	8	5
Balancing			
Criteria			
(before Cost)			

#### Table 1 – Remedial Action Alternatives Evaluation

GW- Groundwater.

PMZ - Plume Management Zone

## 8.0 THE PROPOSED REMEDIAL ACTION

The TCEQ proposes the following *Remedial Action* for the site:

The proposed remedy is Alternative GW-2: On-Site and Off-Site *Plume Management Zone (PMZ)*. *Institutional controls* will be filed in accordance with TRRP to limit the site to commercial/industrial land use and to restrict the use of groundwater in the PMZ. The *institutional control(s)* for the PMZ will remain in place until it is demonstrated that COCs in groundwater no longer exceed the applicable PCLs. The implementation of the PMZ will include the collection and analysis of groundwater samples to confirm that the groundwater plume remains stable and does not expand beyond the boundaries of the PMZ. NAPL will be monitored and managed within the PMZ. On-site soil that exceeds groundwater protection PCLs will be managed within the groundwater PMZ.

# 9.0 COMMUNITY PARTICIPATION IN THE SUPERFUNDPROCESS

**The public is invited to comment on the proposed** *Remedial Action* for the site. Those wanting to make oral comments may do so at the public meeting scheduled for April 9, 2020. The public meeting is legislative in nature and is not a contested case hearing under Chapter 2001 of the Texas Government Code. The public comment period begins March 8, 2020, and ends on April 9, 2020, at the close of the public meeting. During this time period, the public may comment on the proposed *Remedial Action* or give additional information regarding the site or the identification of *Potentially Responsible Parties* (PRPs). Written comments concerning the proposed *Remedial Action* submitted prior to the public meeting must be received by 5:00 p.m. on April 8, 2020. Comments should be submitted to:

Sherell Heidt Superfund Project Manager Texas Commission on Environmental Quality P.O. Box 13087 MC136 Austin, Texas 78711-3087

or by e-mail: <sherell.heidt@tceq.texas.gov>

Any questions not addressed at the public meeting will be addressed in writing by the TCEQ after the meeting and will be placed in the site files.

## **10.0 REMAINING STEPS IN THE SUPERFUND PROCESS**

After the end of the public comment period described above, and after considering all comments received during the public comment period relating to the proposed *Remedial Action*, the TCEQ will select the *Remedial Action* for the site.

PRPs are allowed a period of 60 days from the date of the public meeting to make a good faith offer to fund or perform the selected *Remedial Action*. If any PRPs make an offer, they will be provided an additional 60 days to negotiate the terms of an agreed administrative order with the commission to fund or perform the selected *Remedial Action*. Whether or not PRPs come forward to fund or perform the remedy, the TCEQ will issue a final administrative order as provided by Section 361.188 of THSC (188 Order).

Following issuance of the 188 Order, either the PRPs or the TCEQ will complete the detailed design and construction of the selected remedy. At any time in this process, the TCEQ may determine that a *minor change, significant change*, or *fundamental change* should be made to the *Remedial Action*. If a minor change is implemented, the TCEQ will document the change in the site files without the necessity for another public meeting. If a significant change is made, a notice describing the change will be posted in the *Texas Register* and in a newspaper of general circulation in Houston County. If a fundamental change is considered, another public comment period and public meeting will be held to discuss the proposed change.

Upon completion of the *Remedial Action* and if certain other criteria are met, the TCEQ may propose to delete the site from the state registry of Superfund sites. A public meeting will be held before the site is deleted from the registry.

## 11.0 GLOSSARY

*Affected Property Assessment Report* (APAR) - A report required by the Texas Risk Reduction Rule that documents the findings of the remedial investigation.

*Feasibility Study* (FS) - A process for developing, screening, and evaluating potential *Remedial Action* alternatives for a site.

*Focused Feasibility Study* (FFS) - A streamlined process for developing and screening potential remedial components and forming the *Remedial Action* alternatives to be analyzed in detail for a site.

*Fundamental change* - A change to the *Remedial Action* which uses a different approach to achieve the remedial action goals, or one that uses the same approach, but results in a remedial action that is less protective than the originally proposed Remedial Action.

*Hazard Ranking System* (HRS) - The scoring system used by the TCEQ to evaluate a site for the state or federal Superfund program. The scoring system was developed by the U.S. Environmental Protection Agency (EPA) as described in 40 Code of Federal Regulations Part 300, Appendix A.

*Institutional Control* (IC) - A legal instrument placed in the property records in the form of a deed notice, restrictive covenant, or other form established in the TRRP rules that indicates the limitations on or conditions governing the use of the property to ensure protection of human health and the environment.

*Minor change* - A change to the Remedial Action which does not significantly affect the scope, performance, or cost of the originally proposed Remedial Action.

**Plume Management Zone** – A defined area and depth interval within which institutional controls are applied to prevent potential human contact with affected groundwater.

**Potentially Responsible Parties** (PRPs) - Persons or entities that the TCEQ considers potentially responsible for the contamination of the site pursuant to Section 361.271 of the Texas Health and Safety Code.

**Proposed Remedial Action Document** (PRAD) - The document which describes the TCEQ's proposed *Remedial Action*.

**Protective Concentration Level** (PCL) - The concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway.

**Remedial Action** - An action, including remedial design and post-closure care, consistent with a remedy taken instead of or in addition to a removal action in the event of a release or threatened release of hazardous substances into the environment to prevent or minimize the release of a hazardous substance so that the hazardous substance does not cause an imminent and substantial endangerment to present or future public health and safety or the environment.

**Remedial Investigation** (RI) - An investigative study which may include removals, and/or a *Feasibility Study*, in addition to the development of *Protective Concentration Levels*, designed to adequately determine the nature and extent of release or threatened release of hazardous substances and, as appropriate, its impact on air, soil, groundwater and surface water, both within and beyond the boundaries of the site.

*Removal Action* -An action which removes the source or potential source of contaminants before the Remedial Action is conducted where immediate action is appropriate to protect human health and environment.

*Significant change* - A change to the Remedial Action which materially affects the scope, performance, or cost of the Remedial Action, but which uses the same approach and results in a Remedial Action at least as protective as the originally proposed *Remedial Action*.

**Solid Waste Disposal Act** - Chapter 361 of the Texas Health and Safety Code. The purpose of the *Solid Waste Disposal Act* is to safeguard the health, welfare, and physical property of the people and to protect the environment by controlling the management of solid waste, including any hazardous waste that is generated. Subchapter F of Chapter 361 relates to the state Superfund process. The Texas Health and Safety Code is available online at: <a href="http://www.statutes.legis.state.tx.us/Docs/HS/htm/HS.361.htm">http://www.statutes.legis.state.tx.us/Docs/HS/htm/HS.361.htm</a>.

**Texas Risk Reduction Program** (TRRP) - A program of the TCEQ that provides a consistent corrective action process directed toward protection of human health and the environment balanced with the economic welfare of the citizens of the state. The rules for this program are located in Title 30 of the Texas Administrative Code, Chapter 350. The Texas Administrative Code is available online at: <u>http://www.sos.state.tx.us/tac/</u>.

#### Proposed Remedial Action Document McBay Oil and Gas State Superfund Site Figure 1: Site Location Map



Proposed Remedial Action Document McBay Oil and Gas State Superfund Site Figure 2: Proposed Remedy



			19173			h	
Legend				The Markey	1 Caller		
Site Boundary	•	Monitoring Well Location	Groundwater Flow Direction (April 2018)		200 100	0	200
Houston County Parcel with Parcel ID	• •	Monitoring Well Location (Results do not Exceed PCL)	TPH Groundwater PCLE Zone	X		Feet	
Plume Management Zone Boundary	•	Pilot Test Well Location	2-Methylnaphthalene Groundwater PCLE Zone		the si	the second second	
Historical Site Feature	Ø	Decommissioned Well Location	1-Methylnaphthalene Groundwater PCLE Zone		Client:	McBay Oil and Gas State Superfund Site	
Water Body		Proposed AMP Well Location	Benzene Groundwater PCLE Zone		Gra Report:	peland, Houston County, Texa	IS
Intermittent Stream			Notes:	AECOM		PRAD	
× × × × Fence Line NG — Gas Line		Proposed POE Well Location	<ol> <li>Any future contingency groundwater treatment areas will be further evaluated in a RAP.</li> <li>Exceedances within the Flanagan Pit Area are not associated with the McBay site, and are not represented here.</li> <li>The PCLE zones were updated based on the most recent groundwater monitoring data (up to December 2019), and data</li> </ol>	9400 Amberglen Blvd. Austin, TX 78729 Phone: (512) 454-4797 Fax: (512) 454-8807	Figure 2 PROPOSED REMEDY (GW-2)		)
Image Source: Google earth, January 19, 2019.			<ul> <li>tor new wells MW-35 through MW-37 were added.</li> <li>MW-22 and MW-33 exceeded the PCL for 1-methylnaphthalene in October 2019 but not in December 2019.</li> </ul>	Drawn by: GWC/AUS	Date: 13 February 2020	GIS File: Fig 7 Alt GW2	Figure: 2

#### **APPENDIX A**

#### LIST OF REPORTS

- 1. Focused Feasibility Study (February 2020);
- 2. Revised Affected Property Assessment Report (January 2020);
- 3. TCEQ Interoffice Memorandum on the Responses to TCEQ Comments on the Screening Level Ecological Risk Assessment, and Background Soil Study (August 28, 2018);
- 4. Annual Groundwater Monitoring Report for February, April, and July 2018 Sample Events (August 28, 2018);
- 5. Background Soil Study (EnSafe August 28, 2018);
- 6. Pilot Test Well Installation Report (April 2018);
- 7. TCEQ Interoffice Memorandum on the SLERA (August 31, 2017);
- 8. Addendum No. 2 of the January 2016 Field Sampling Plan (October 2016 to August 2017);
- 9. Field Sampling Plan Addendum (2013 to 2014);
- 10. Field Sampling Plan (2011 to 2013);
- 11. Preliminary TRRP Feasibility Study Report (August 2005);
- 12. Feasibility Study Report, Presumptive Remedy Document, McBay Oil and Gas State Superfund Site (April 2005);
- 13. Final Remedial Investigation Report (September 2004);
- 14. Workplan for Further Groundwater Investigation (March 14, 2003);
- 15. Phase II Remedial Investigation and the Phase III Work Plan (January 30, 2001);
- 16. Phase I Remedial Investigation (January 30, 2001);
- 17. U.S. EPA Hazard Ranking Package Evaluation document (December 12, 1986);
- Memorandum from Ecology and Environment Inc. to the U.S. EPA (SUBJ: Sampling Mission at the J.E. Flanagan Site, Grapeland, TX (TX12408) TDD# R06-8504-18) (April 21, 1986);
- 19. Phase II of the Site Investigation (October 23-24, 1985);
- 20. U.S. EPA Potential Hazardous Waste Tentative Disposition Form (T2070-2[10-79]) for Site Number TX 12408 (December 28, 1984); and
- 21. Site Inspection (October 10, 1984).